

Observations on Spawning in *Calliostoma ligatum* (Gould, 1849)

BY

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ALTHOUGH THE GENUS *Calliostoma* occurs commonly along the Pacific Coast of North America, the life histories of these trochids remain virtually unknown. Recently, several authors have contributed to the natural history of these snails: KEEN (1975) provided observation on morphology and habits of several *Calliostoma* from California; PERRON (1975) reported on the feeding behavior of 3 Oregon species of *Calliostoma*; LOWRY, McELROY & PEARSE (1974) discussed distribution and habitat preference in a shallow subtidal environment at Monterey, California; SELLERS (1977) and HUNT (1977) discussed behavior and distribution of *Calliostoma* inhabiting kelp beds in central California. Spawning behavior of the California species has not been previously documented.

On July 18, 1977, a single specimen of *Calliostoma ligatum* (Gould, 1849) was collected during a shallow water (3.6m) settling plate study at Diablo Canyon in San Luis Obispo County, California (120°51'23"W; 35°12'44"N). The animal was maintained in a container of seawater. The snail immediately moved to the water-air interface and remained stationary for 20 minutes, after which time green eggs were extruded from the right side of the mantle cavity. The eggs were liberated in a mucus sheath in groups of 10 to 12. Within 25 minutes the bottom of the aquarium contained large masses of green eggs. The spawning lasted for 2 hours and 3 minutes, at which time the total number of eggs spawned was estimated at approximately 3 000. Each egg was spherical, 29-30 µm in diameter. The granular green eggs had a single central yolk sac.

Similar spawning behavior has been observed for another trochid, *Tegula brunnea* (Philippi, 1848), collected in Oregon during August (BELCHIK, 1965). Spawning occurred approximately 12 hours after collection in both

male and female specimens of *T. brunnea*. The males were observed to "... discharge puffs of white sperm," followed by spawning of moss-green eggs by the females. No male *Calliostoma ligatum* occurred on the settling plate on which the female specimen was found; however, these snails are common in the area and the possibility of spawning induced by a nearby male does exist. Spawning may also have been induced by the stress of being transferred from the field to the laboratory, or by some other, unknown factor.

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